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# Lander Region Angler Newsletter

2022

## BECOME A MASTER ANGLER!

The Wyoming Game and Fish Department (WGFD) is pleased to provide a program that recognizes the catch of trophy sized fish from our phenomenal Wyoming waters. There are three levels of achievement; Master Angler, Trophy Angler and Ultimate Angler.

**Master Angler :** Catch one fish of a qualifying length and you will be awarded a Master Angler decal sticker of that species.

**Trophy Angler:** Catch any 5 species of qualifying length and you will be awarded a Trophy Angler Award challenge coin.

**Ultimate Angler:** Catch any 10 species of qualifying length and you will earn the Ultimate Angler award comprised of a prize package and state recognition.

### Rules:

- Open to all Wyoming anglers, Resident and Nonresident.
- Fish must be caught with legal methods and during open seasons in Wyoming.
- Entries must be for fish captured after Jun 1, 2019.
- Anglers are limited to one Master Angler entry per species per calendar year. Submissions Trophy Angler and Ultimate Angler have no time limitations.
- Each entry must be accompanied by one side-view photograph, preferably with either the angler or another object (e.g. ruler) that can be used to validate length.
- Qualifying fish must meet or exceed the minimum length established for that species. Length is defined as the Total Length of the fish (nearest 1/2 inch): from the snout to the tip of the pinched tail.



Waters within the **Lander Region** in which qualifying fish can be captured include Badwater Pond (Tiger Muskie), Boysen Reservoir (Channel Catfish, Crappie, Rainbow Trout, Sauger, Walleye, Yellow Perch), Lake Cameahwait (Largemouth Bass and Tiger Muskie), Pelham Lake (Cutthroat Trout), the Popo Agie River (Brown Trout, Mountain Whitefish, Rainbow Trout), the Wind River (Brown Trout and Rainbow Trout), and the Wind River Mountains (Golden Trout). To find out more about the Master Angler Program visit: <http://wgfd.wyo.gov/Fishing-and-Boating/Master-Angler>

## Boysen Reservoir Walleye

Annual fall gill netting conducted in 2021 by the WGFD showed that Boysen Reservoir continues to provide an excellent fishery. Walleye numbers were the highest observed since 2008 (Figure 1). Strong 2014, 2015, 2016 hatches, and an especially strong 2018 hatch are providing anglers excellent opportunities to catch 12 to 18-inch Walleye (Figure 2). Thirteen to 16-inch Walleye from the 2018 hatch made up the majority of fish captured in WGFD gill nets in 2021.

The 2021 Sauger catch rate declined from 2020 to 2021 (Figure 3; next page). Many Sauger move upstream to the Wind, Little Wind, and Popo Agie rivers upon reaching reproductive maturity at age-3 to age-5. Over 60% of the Sauger captured in 2020 gill nets were age-3. The decrease in Sauger numbers from 2020 to 2021 may have been the result of fish from that year class leaving the reservoir for the upstream river system. The majority of Sauger captured in 2021 were 13 to 15 inches and age-2 and age-3 (Figure 4).

Unfortunately, Yellow Perch numbers were low for the third consecutive year. The low Yellow Perch catch rates are likely influenced by the current high numbers of Walleye, which feed on Yellow Perch. Despite the low catch rates, 85% of captured Yellow Perch were over 10 inches (Figure 5).

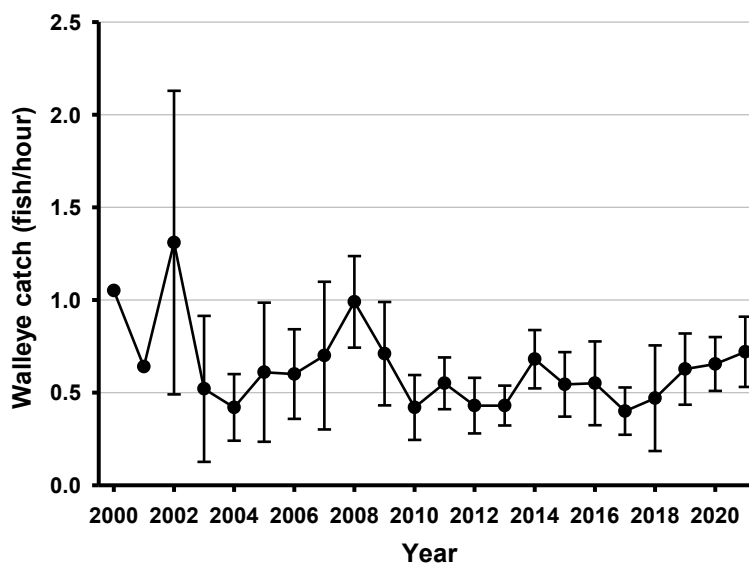


Figure 1. Average catch rates for Walleye in WGFD gill nets in Boysen Reservoir (2000-2021). Error bars represent 90% confidence intervals.

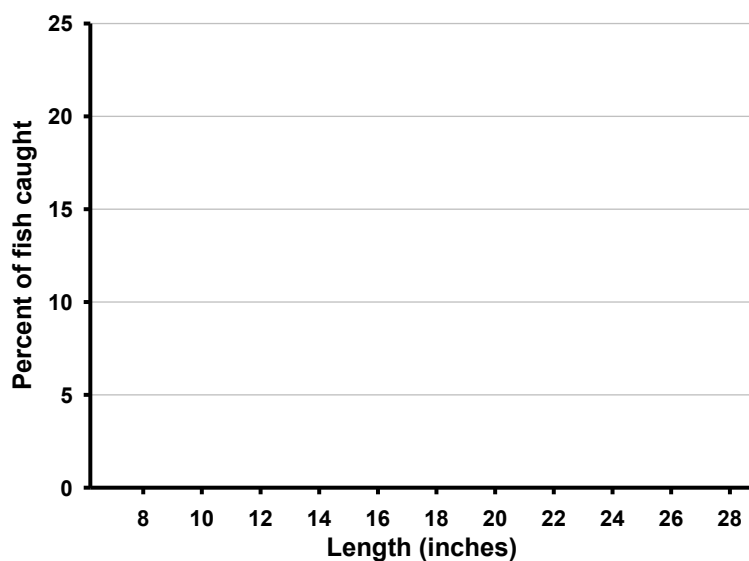


Figure 2. Length frequency of Walleye caught in WGFD gill nets in Boysen Reservoir, September 2021.



Young Sauger from Boysen Reservoir

## Boysen Reservoir Walleye Continued

Overall, the 2021 netting results indicate high numbers of Walleye and fair numbers of Sauger will be available to anglers in 2022; however, catching Yellow Perch may be more difficult. Walleye from the strong 2018 hatch should be over 15 inches in length in 2022. Because the Walleye & Sauger populations are both doing well, it is especially important for anglers to be able to identify between the two species. The creel limit on Sauger in the Wind River drainage (including Boysen Reservoir) is two, whereas six Walleye can be harvested daily or kept in possession. Sauger and Walleye limits in the Wind River drainage are not combined, so an angler can possess up to eight fish as long as no more than two are Sauger and no more than six are Walleye. All Walleye and Sauger caught in the Wind River drainage also must remain whole (gills and entrails may be removed) until the angler is off the water/ice and done fishing for the day. Once off the water/ice and done fishing for the day, Walleye and Sauger may be filleted for transportation and storage. A piece of skin large enough to allow species identification (at least one (1) inch square) shall remain on all fish fillets while in transit or in the field. Please see the picture to the right to learn more on how to identify a Sauger from a Walleye.

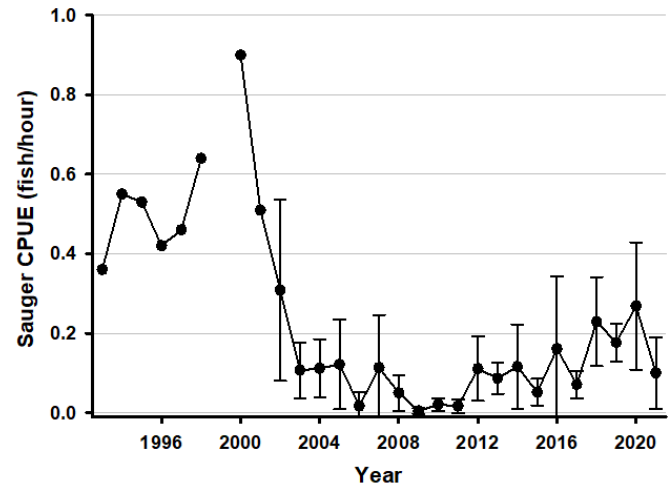


Figure 3. Average catch rates for Sauger in WGFD gill nets in Boysen Reservoir (2000-2021). Error bars represent

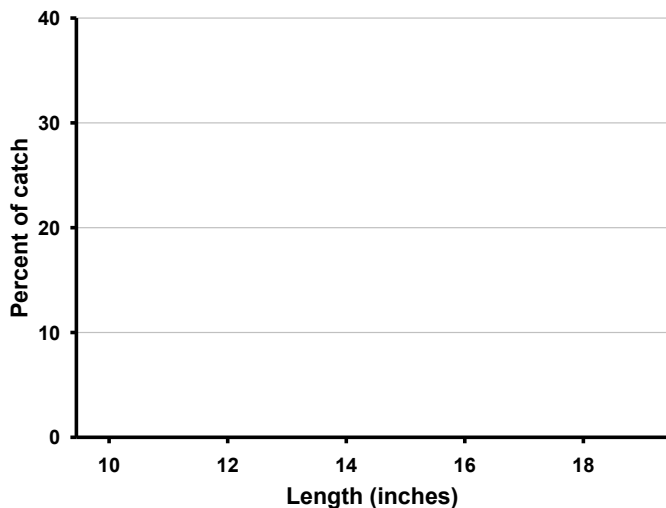
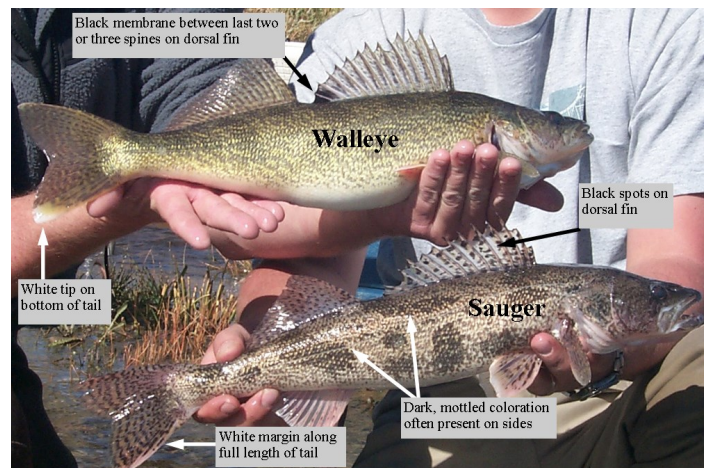


Figure 4. Length frequency of Sauger caught in WGFD gill nets in Boysen Reservoir, September 2021.

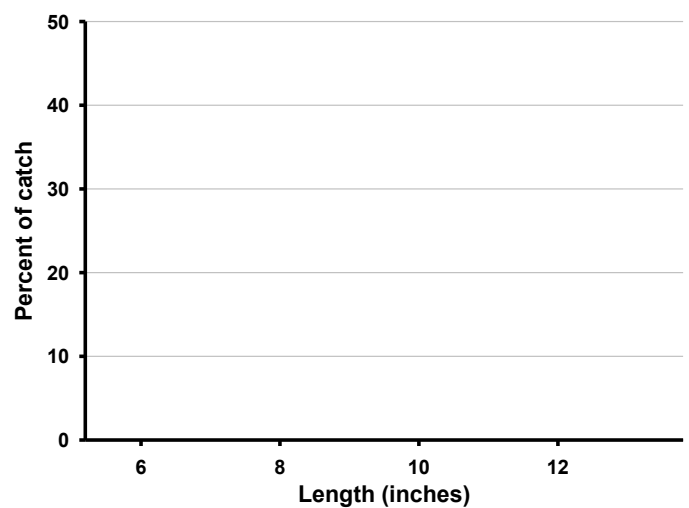


Figure 5. Length frequency of Yellow Perch caught in WGFD gill nets in Boysen Reservoir, September 2021.

## Boysen Reservoir Trout

Many species in Boysen Reservoir are natural recruiting but for trout, stocking is needed. The trout fishery in Boysen Reservoir has improved in recent years. The WGFD's hatcheries have made facility improvements that have allowed more fish to be raised. Stocking from 2010-2012 ranged from 22,000 to 50,000. In recent years annual stocking was boosted to 100,000. Trend data, based on gill net catch rates, shows that trout abundance has been relatively high (Figure 1). The opportunity for anglers to catch trout should be good in 2022.

Average length of Rainbow Trout was 17.9 inches in 2021. Average size has been increasing since 2019 (Figure 2). The WGFD stocks catchable sized fish (9 to 10 inches) in Boysen Reservoir during fall to avoid predation. The newly stocked fish grow through the winter and are around 13.5 to 15 inches in May when netting occurs. At this size they are less likely to be preyed upon and will typically live another 3 to 4 years in Boysen. The increased proportion of newly stocked fish represented in gill nets has led to a decrease in Average length. This decrease is reflected in Figure 2 beginning in 2016 when stocking rates were increased.

Kokanee Salmon and Bear River Cutthroat Trout have been stocked in Boysen Reservoir in recent years. Approximately 45 thousand Kokanee were stocked in 2021 and 30 thousand Bear River Cutthroat Trout were stocked in 2020 and 2021. Bear River Cutthroat Trout typically perform well in large lakes and reservoirs. Time will tell whether Boysen Reservoir has favorable habitat for Bear River

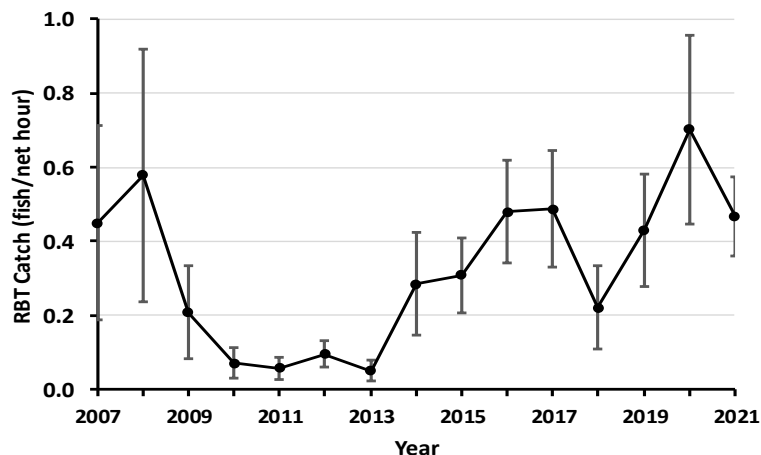


Figure 1. Average catch rates for Rainbow Trout in floating gill nets (2007-2021), Boysen Reservoir. Error bars represent 90% confidence intervals



Rainbow Trout from Boysen Reservoir

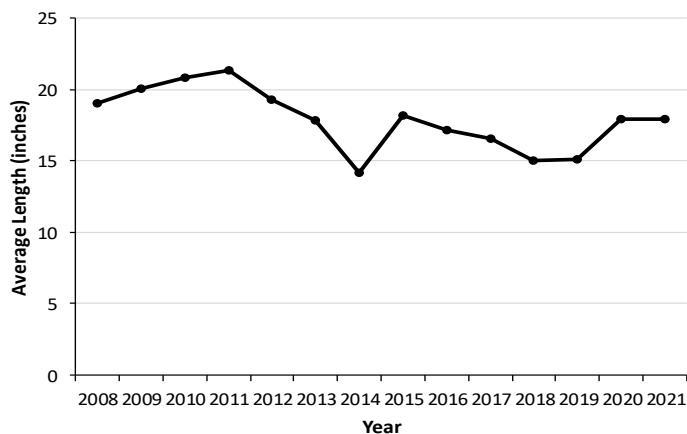


Figure 2. Average length (inches) of Rainbow Trout in floating gill nets (2008 – 2021), Boysen Reservoir.

Cutthroat Trout and Kokanee. Sampling of zooplankton indicates that forage is plentiful for these species. However, Boysen Reservoir is lower in elevation and warmer than most waters where these species are normally stocked. The WGFD will be evaluating the survival and performance of Kokanee and Bear River Cutthroat Trout over the next few years.

## Lake Cameahwait “Bass Lake”

Lake Cameahwait, known as Bass Lake, is located west of Boysen Reservoir. It is primarily managed for Largemouth Bass but also supports the opportunity to catch Yellow Perch, Bluegill and Tiger Muskie.

Standardized trend data has been collected since 1992. Largemouth Bass trend data is presented in Table 1. In 1992, the Largemouth Bass fishery was dominated by small fish. Only 10 percent exceeded 10 inches. A slot-length limit was implemented in 1996 to protect and increase abundance of fish greater than 10 inches. In following years the size structure shifted and there was a higher proportion of fish from 10 – 15 inches. However, abundance of fish greater than 15 inches decreased. Fish were aged in 2010 which provided growth (length at age). Age data showed that bass growth stunted around 14 to 15 inches (Figure 1). Few fish exceeded 15 inches and were available for harvest in 2010.

Although the slot-length limit had some benefit, it led to overabundance and stunting of medium sized bass. Bluegill were introduced in 2012. The WGFD hoped that adding another fish species for forage should shift size structure of bass. By 2015, the bass population responded to Bluegill. The bass population soon uncompressed and was more balanced (fish ranging from small to large). Bluegill buffered predation on young bass allowing more to survive and boosted growth of larger bass.

Although Bluegill added forage, they also compete with bass for resources. In fisheries with dense vegetation, Bluegill can overpopulate and not provide the desired benefit. To prevent overpopulation of Bluegill, sterile Grass Carp and Tiger Muskie were stocked. Neither species can reproduce.



Age 1+, 2+, 3+ and 4+ Largemouth Bass at Lake Cameahwait.

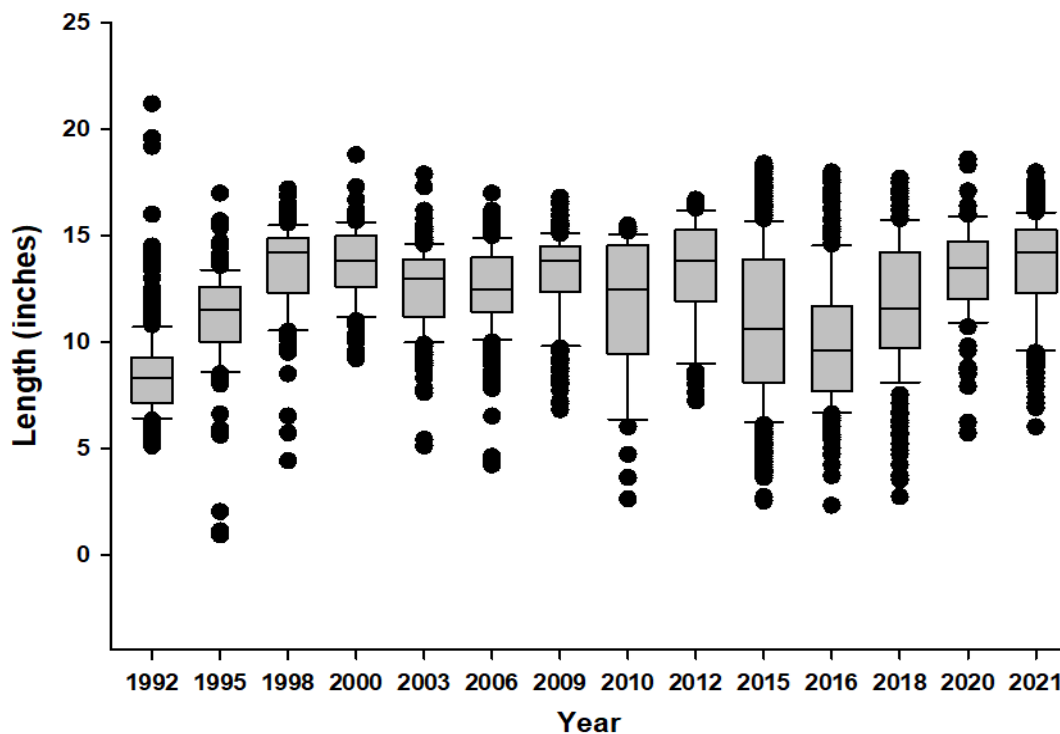


Figure 1. Average length (dash in box) and range (box and whiskers) for Largemouth Bass caught with electrofishing boat 1992-2021, Lake Cameahwait.

## Lake Cameahwait continued

Sterile Grass Carp were stocked in 2014, 2016 and 2017 in attempt to boost food production and reduce cover. Studies have shown that Grass Carp fertilize water by excreting nutrients bound in plants they consume. Studies have also shown that Grass Carp expose fish to predation by reducing cover. From 2017 to 2020, Grass Carp reduced vegetation cover by 11% (47 acres). Phytoplankton “algae” increased for a few years post stocking. Being

Table 2. Number, catch per net hour, average length (n; SD) with ranges, and average weight (n; SD) with ranges of fish captured by using an electrofishing boat in Lake Cameahwait on June 07, 2021.

Species	Number	Catch per net hour	Average Length	Range	Average Weight	Range
Bluegill	5	1.01	7.2 (5; 1.1)	6.0 - 8.3	0.50	
LMB	350	70.18	13.6 (350; 2.4)	6.0 - 18.0	1.52 (149; 0.57)	0.40 - 2.87
TIM	3	0.56	24.1 (3; 1.4)	22.7 - 25.5	3.23 (2; 0.20)	3.09 - 3.37

at the bottom of the food web, phytoplankton eventually ends up as fish flesh. Zooplankton eat algae. Larval fish and adult Yellow Perch feed on zooplankton. Consumption of vegetation by Grass Carp decreased with age, therefore the benefits to the fishery lasted only a few years.

In 2021, Lake Cameahwait was sampled to estimate the population of Largemouth Bass. The length and weight of fish captured are presented in Table 2. The population estimate for Largemouth Bass > 8 inches was 1,368 fish. This was a substantial decrease from the estimated 2,843 fish (> 8 inches) in 2015. The percent of fish greater than 17 inches is the highest since 2000 (Figure 2). Results from recent sampling of Largemouth Bass in Lake Cameahwait showed 1) density has decreased, 2) growth has increased (Figure 2), and 3) the proportion of fish greater than 17 inches has increased (Figure 3). The WGFD will continue to apply management strategies to enhance the fishery at Lake Cameahwait. The next phase is to work on habitat that will attract fish and improve angling success.

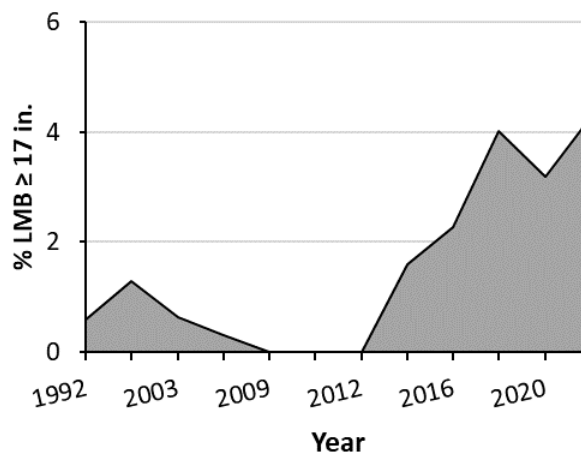
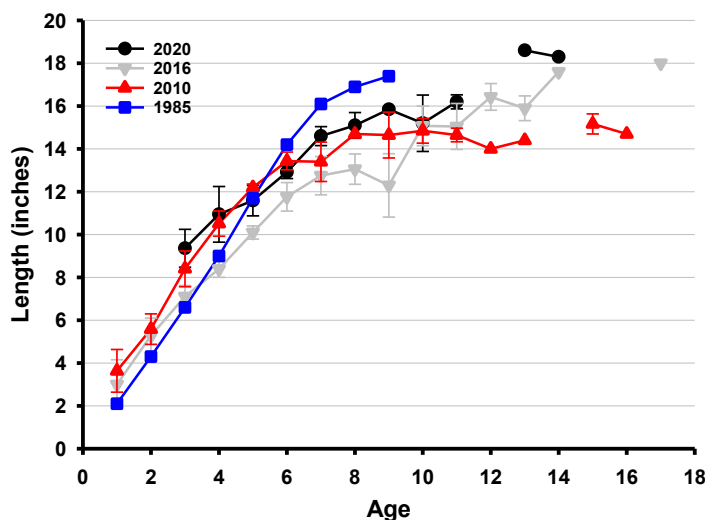
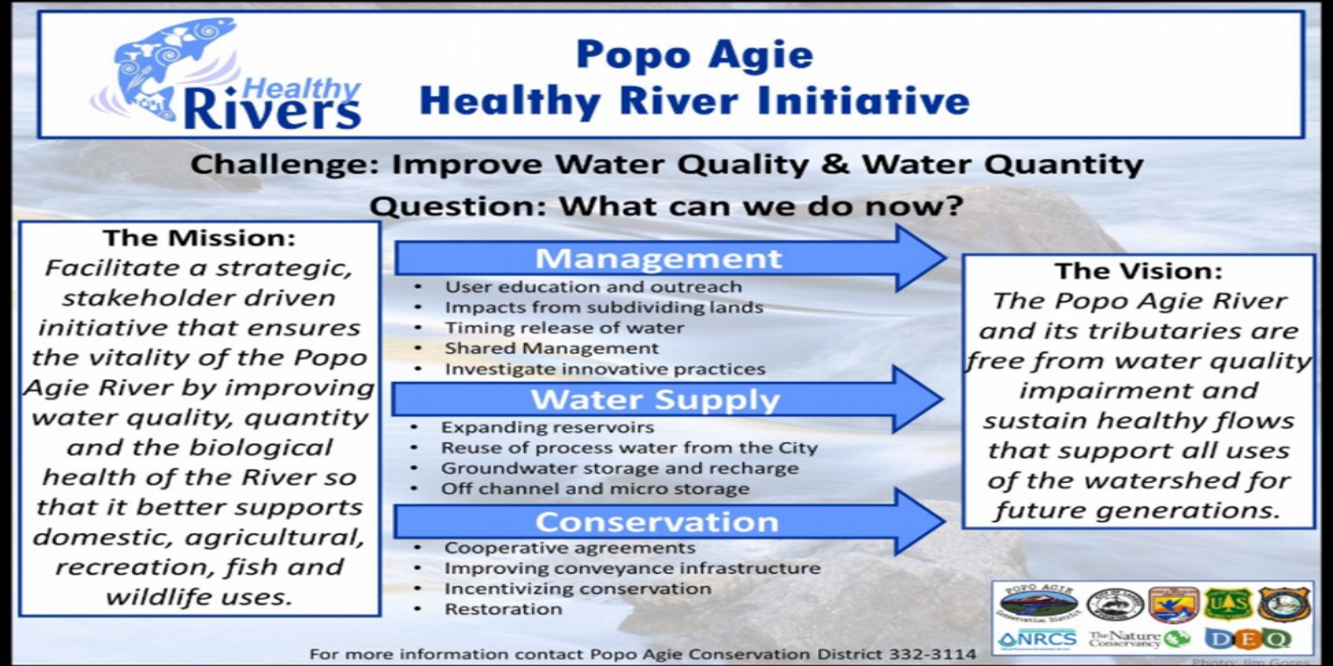


FIGURE 1. Length at age by year for Largemouth Bass.

Figure 2. Percent of LMB ≥ 17 inches caught in June in WGFD sampling 1992-2021.



The Healthy Rivers Initiative (HRI) was founded in 2016 with a vision for the Popo Agie River watershed to be free from water quality impairment and sustain healthy flow that support all uses of the watershed for future generations. The Lander Aquatic Habitat Biologist is a member of the working group for this stakeholder-driven initiative which pulls together water users and community members to identify, develop, and implement voluntary measures and best practices for managing water during times of low flows. Anyone who has walked along City Park in Lander in August has likely noticed that stream flow in the Middle Fork often drops low enough in the summer to limit trout habitat. In June 2019, the average stream flow in the Middle Fork coming out of Sinks Canyon was over 900 cubic feet per second (cfs) but the average flow in town in August was 9 cfs.

HRI has funded several studies to identify projects that could improve water use efficiency and is now assisting with the implementation of some of those projects. HRI decided they needed a data-driven target flow, specific to the habitat and fisheries of the Middle Fork, to use as a long-term goal for the initiative. In 2019, the Aquatic Habitat Biologist



led a study to determine the amount of stream flow that is necessary to support the trout fish-

ery through the town of Lander in late summer. Data was collected at multiple locations during a range of flows and included continuous measurements of stream flow, quantification of trout cover, evaluation of fish passage at low flows, and sampling of aquatic bugs to estimate fish food availability. The data are being analyzed and a late summer target flow recommendation for the Middle Fork Popo Agie River will be provided to HRI to use as one of the long-term goals for the initiative.



## Pilot Butte Reservoir

Pilot Butte Reservoir is a 921-acre reservoir located on Highway 26 near Morton, and is managed by stocking 10,000 8- to 9-inch rainbow trout annually. Spring 2021 netting produced a rainbow trout catch rate of 0.31 fish/hour of netting time, which was below the objective of 0.50 fish/hour (Figure 1). Rainbow trout lengths ranged from 13.5 to 18.5 inches, with an average length of 16 inches (Figure 2). The fishing at Pilot Butte is best in winter, spring, and early summer. Both boat and shore anglers tend to be successful at capturing the stocked rainbow trout. Unfortunately, Pilot Butte was almost completely drained in fall 2021 so that repairs could be made on the dam. Most of the rainbow trout in the reservoir either entered Pilot Canal when the reservoir was drained, or died as a result of the low water levels.

Approximately 5,800, 3 to 4-inch rainbow trout were stocked in November 2021 to help re-establish the population; however, fishing will be slower than usual at Pilot Butte for the next couple years. We hope the population will be recovered by 2024. The last time Pilot Butte was drained (fall 2016), the rainbow trout population recovered by 2019 (Figure 1). In addition to the 10,000 rainbow trout that are stocked annually, the WGFD will continue to pursue any extra fish produced by our hatcheries to expedite the recovery of the population.

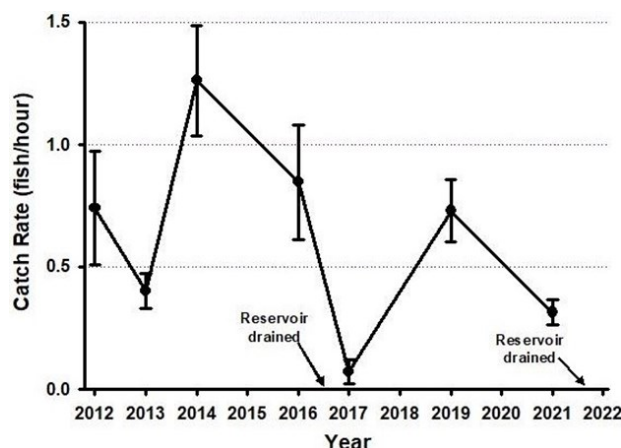


Figure 1. Average catch rates for rainbow trout in WGFD gill nets in Pilot Butte Reservoir (2012 - 2021).



Pilot Butte rainbow trout



Low water level at Pilot Butte Reservoir, September 2021.

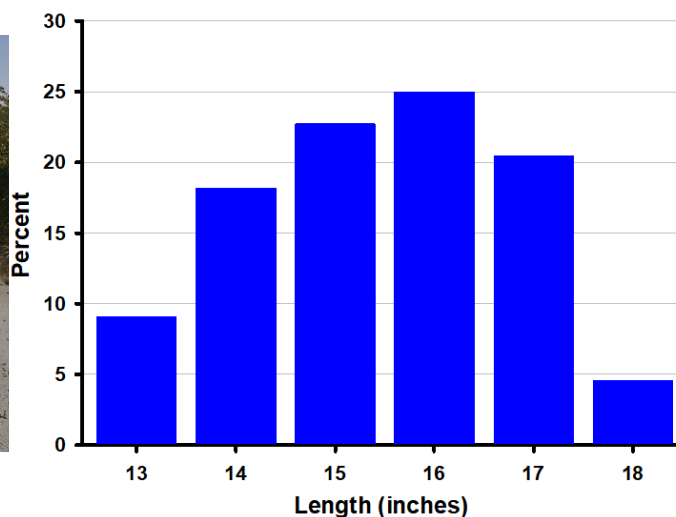


Figure 2. Length frequency of rainbow trout caught in WGFD gill nets in Pilot Butte Reservoir, April 2021.

## North Fork Popo Agie River and High Meadow Creek

From August 23 - 28, 2021 the Wyoming Game and Fish Department (WGFD) conducted fish and amphibian surveys within the High Meadow Creek and North Fork Popo Agie River drainages in the Wind River Mountains. The drainages can be accessed using the Smith Lake Creek or North Fork trailheads, both of which are located in Dickinson Park within the Shoshone National Forest. The purposes of these surveys were to look for rare Western Toads and evaluate sport fisheries, including those that have native cutthroat trout. Results of the fisheries surveys are summarized in the table below. Anyone wanting to recreate in these drainages is reminded that a tribal fishing license or trespass permit needs to be obtained from the Shoshone and Arapaho Fish and Game to access Dickinson Park.

Fisheries survey results showed that the High Meadow Creek drainage currently offers outstanding fishing for native Yellowstone Cutthroat Trout. Although the cutthroat are not large (the biggest fish captured was 14.7 inches), they are numerous in Cliff and High Meadow lakes and High Meadow Creek (Table 1). The cutthroat within the High Meadow Creek drainage are the only known genetically unaltered Yellowstone Cutthroat Trout within the Popo Agie watershed. Although none were observed in 2021, low numbers of Arctic Grayling also exist in the High Meadow Creek drainage. Survey results also showed that outstanding sport fishing exists in the North Fork Popo Agie River, Lonesome Lake, and Papoose Lake. Although the maximum observed length for both species was only 12.1 inches, numerous Brook Trout and cutthroat trout exist within the drainage and are easy to catch by hook and line. The subspecies of cutthroat trout present in the North Fork Popo Agie drainage is currently unknown, but is likely a hybridized mix of subspecies (Yellowstone, Snake River, and/or Colorado River). Cutthroat trout were stocked in the drainage in 1913 (federal government) and 1976 (WGFD); however, the subspecies was not documented in the stocking records. Finis Mitchell also stated that he transplanted cutthroat trout (subspecies unknown) throughout the upper North Fork Popo Agie River drainage in 1931. We do know that Snake River Cutthroat trout exist within the drainage, as the WGFD stocked this subspecies in 1986. Different spotting patterns are apparent within the drainage, with some fish having fine spots typical of the Snake River subspecies, and others having larger spots typical of the Yellowstone and Colorado River subspecies. Nonlethal genetic

samples (a fin clip smaller than your pinky fingernail) were collected from cutthroat trout captured in 2021 and sent to the University of Wyoming to determine the subspecies that are present within the drainage. Results should be available sometime in 2022 or early 2023.



Picture 1. Yellowstone Cutthroat trout are numerous in the High Meadow Creek drainage.



Pictures 2 – 3. Brook Trout are numerous in the North Fork Popo Agie River, and cutthroat trout also exist in lower numbers.

Table 1. Lake, fish species and length range.

<u>Lake</u>	<u>Species</u>	<u>Length Range (inches)</u>
Cliff	Yellowstone Cutthroat Trout	9.8 - 11.6
High Meadow	Yellowstone Cutthroat Trout	10.6 – 14.7
Papoose	Brook Trout	7.3 – 12.1
Lonesome	Brook Trout	8.0 – 10.6
	Cutthroat Trout	8.9 – 12.1

## North Fork Popo Agie River and High Meadow Creek

While we manage for Brook Trout in many places, it is unfortunate that these survey results also showed that they are displacing cutthroat trout within the upper North Fork Popo Agie River drainage. No Brook Trout were captured in WGFD nets set in 2006 in Lonesome Lake, which is near the headwaters of the North Fork Popo Agie River. Additionally, Brook Trout in the North Fork Popo Agie River were found no further than 5 miles downstream from Lonesome Lake in 2006. The next fisheries surveys within the drainage occurred in 2014, when the first Brook Trout was documented in Lonesome Lake; however, cutthroat trout outnumbered Brook Trout 50:1. During 2021 netting, cutthroat trout still outnumbered Brook Trout, but the ratio was only 5:3. Similar displacement of cutthroat trout by Brook Trout was observed in Papoose Lake. Cutthroat trout were the only species documented in 2006, but were outnumbered by Brook Trout 2:9 in nets set in 2014. During 2021 netting, Brook Trout was the only species captured in Papoose Lake.

Although the expansion of Brook Trout into Papoose Lake, Lonesome Lake, and the headwaters of the mainstem North Fork Popo Agie River is unfortunate, no management changes or activities will be implemented by the WGFD in the near future. The North Fork Popo Agie drainage is too large and remote, too many nonnative fisheries exist in tributary drainages, and natural barriers are too few to make cutthroat trout restoration activities logistically possible.

Amphibian surveys documented good numbers of Western Toads. Western Toad is a Species of Greatest Conservation Need, and considered rare in Wyoming. Many life stages were observed in 2021, including adults, juveniles (likely 1 or 2 years old), toadlets, and tadpoles. The toadlet and tadpole observations were particularly encouraging, and confirmed that successful reproduction occurred in 2021.



Pictures of the various life stages of Western Toads found in the High Meadow Drainage.



## Wyoming Game and Fish Department

*Conserving Wildlife*

*Serving People*

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### Important Dates in 2022

- **June 4 — Wyoming's Free Fishing Day** *The Wyoming Game and Fish Commission has declared June 4, 2022 Free Fishing Day to coincide with the beginning of the National Fishing and Boating week. Residents and nonresidents may fish Wyoming waters (excluding Wind River Indian Reservation and Yellowstone National Park) without a fishing license or conservation stamp.*
- **June 4 — Kids Fishing Day at Luckey Pond (Lander) and Rendezvous ponds (Riverton) starting at 10AM.**
- **June 11 — Pete's Pond Dubois Kids Fishing Day**  
*Pete's Pond is a new community fishing pond in Dubois located near the rodeo grounds. The pond was completed in 2018 and it is stocked with catchable size Rainbow Trout, Yellowstone Cutthroat Trout, and Grayling.)*
- **June 15 — Shoshone Lake and Shoshone Creek opens to fishing** *(Closed to fishing from September 1 to June 14)*
- **January 1, April 1, June 1—Wind River Reservation waters open to fishing**  
*Reservation waters that are open to the general public (with a valid tribal fishing license) have various opening and closing dates. Make sure to consult tribal fishing regulations.*

### Lander Region Fisheries Staff

**Craig Amadio — Regional Fisheries Supervisor**

**Joe Deromedi — Fisheries Biologist**

**Paul Gerrity — Fisheries Biologist**

**Joanna Harter — Aquatic Habitat Biologist**

**Nick Scribner — Fish Passage Coordinator**

**Emily Rinker — AIS Specialist**

**Brad Hughes — Dubois Hatchery Superintendent**

**Bill Yaracz — Senior Fish Culturist**

**Matt Yorgason — Fish Culturist**